

Some contributions to the wall flora of North Cyprus

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1. Abstract

A survey of plants growing on walls in North Cyprus resulted in a preliminary checklist of some 200 vascular plant species. This corresponds to more than 15 percent of all species known for North Cyprus. In comparison to Europe the amounts of therophytes, phanerophytes and geophytes are considerably higher.

2. Introduction

The construction of walls was developed in different culture groups (Mediterranean area, China, India, Central and South America) presumably independent from each other. Only with walls a permanent banking of farmland and wine yards was possible. The building up of cities and fortifications was rendered possible in an unexpected way. The city wall of Jericho is often noted as one of the very first ones (ca. 7000 B. C.). Depending on the region, the material used, their age, surrounding and state of preservation walls offer numerous micro-habitats and living areas for many organisms. Therefore they are in the focus of nature conservation. On the other hand they themselves are strongly endangered because nowadays walls are only seldom built up from stone or bricks and lime mortar. Nowadays concrete is mostly in use. During reconstruction commonly cement mortar is used instead of lime mortar which prevents colonisation of the wall fissures. The number of conventional walls would have passed their maximum long ago. The aim of our project is to give an overview of the flora and vegetation of Europe, the Mediterranean area and adjacent areas (BRANDES 1992a, 1992b, 2013, 2020, BRANDES & BRANDES 1999).

After civil war conflicts and subsequent occupation of the north of Cyprus by the Turkish army in 1974, North Cyprus (Turkish Republic of North Cyprus) was established. It has an area of 3255 km². This is more than one third of the EU member Cyprus (9251 km²).

During two excursions (2017 and 2019) to North Cyprus guided by Marina Cetislan places of botanical, historical and archaeological interest have been visited.

This publication offers a first overview of the wall flora of North Cyprus. The focus was on locations with historical walls such as Bellapais (Beylerbeyi), Besparmak (Pentadaktylos), Famagusta (Gazimagusa), Kyrénia (Girne), Karmi (Karaman), Kantara castle, Kayalar, Salamis, St. Hilarion and accessible vegetated walls in the landscape and villages. By documenting the wall flora we distinguished between four sections based on the flora's growing place: vertical walls (mostly upright with low supply of humidity), wall tops (better supplied by humidity depending on their age and soil layer), wall bases (good supply of humidity and nutrient) and retaining walls (medium supply of humidity).

The determination of the plants is based on MEIKLE (1977-1985). Very helpful was also VINEY (1994 and 1996). The nomenclature was checked against the dynamic data base Flora of Cyprus (HAND R., G. N. HADJIKYRIAKOU & C. S. CHRISTODOULOU 2011 ff.)

3. Results

In a first approximation some 200 vascular plant species are listed. The real number is assumed to be much higher, because only selected walls have been investigated. But at least our first list shows that more than 15% of the flora of North Cyprus is growing in walls. Most of the 'wall growing' species are found in St. Hilarion and Kyrénia (Girne). The 198 species of wall flora of North Cyprus belong to 55 plant families.

The most common plant families growing on walls are

Asteraceae (20 species),
Poaceae (16 species),
Brassicaceae (10 species),
Caryophyllaceae (10 species),
Fabaceae (10 species),
Lamiaceae (10 species),

Apiaceae (9 species),
Rubiaceae (9 species),
Geraniaceae (7 species),
Asparagaceae (6 species)
Crassulaceae (6 species).

The number of neophytes (15) is low compared to Europe:

Acacia cyanophylla
Ailanthus altissima
Aptenia cordifolia
(or the cultivar *Aptenia* 'Red Apple', see
Smith et al. 2020)
Carpobrotus edulis
Erigeron bonariensis
Iris germanica
Lantana camara

Lycium ferocissimum
Matthiola incana
Nicotiana glauca
Osteospermum ecklonis
Oxalis pes-caprae
Senecio angulatus
Senecio cinerea
Vinca major

Most of the nonresident species are running wild only in a very local area near to the respective agricultural populations. With respect to herbaceous plants only *Oxalis pes-caprae* is wide spread. *Ailanthus altissima*, *Nicotiana glauca* (BRANDES 2001) as well as *Senecio angulatus* have to be seen as potentially dangerous due to their competitiveness. But it is easy to reduce the species by cutting.

The distribution of the different microhabitats of vascular plants in the surroundings of the walls is shown in fig. 1.

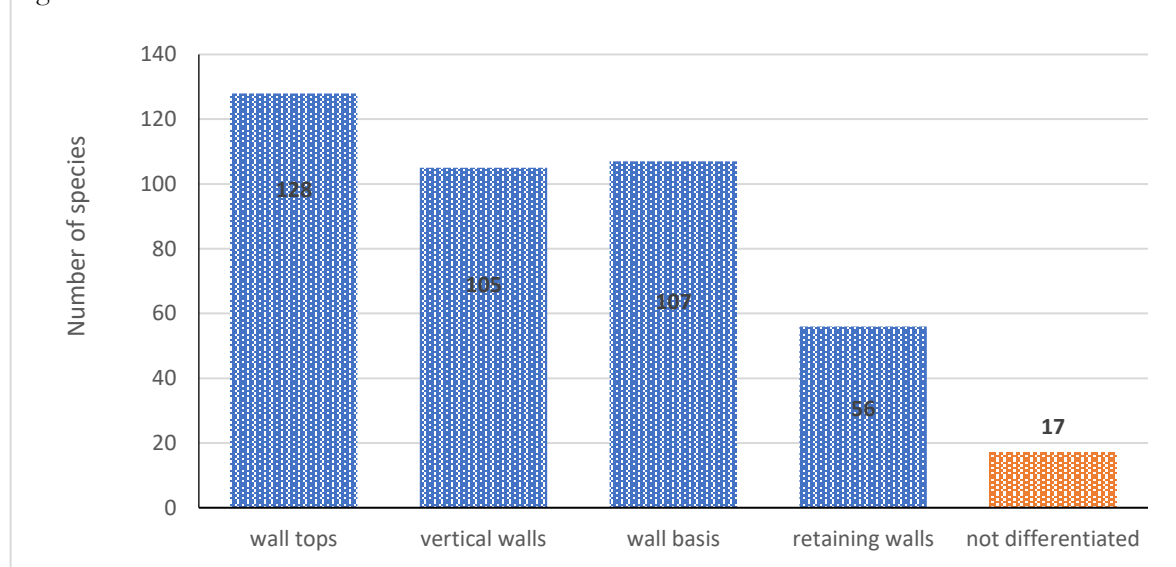


Fig. 1 Distribution of Species versus Microhabitat (Multiple entries are possible.)

Wall tops have 122 entries while retaining walls only show 56 entries. The low number of entries for retaining walls is noticeable, although many of them have no fissures being suitable for the establishing of plants. It is assumed that forthcoming studies of further retaining walls in the agricultural landscape will enlarge the number of plants.

The distribution of the Raunkiaer plant life-forms is shown in fig.2.

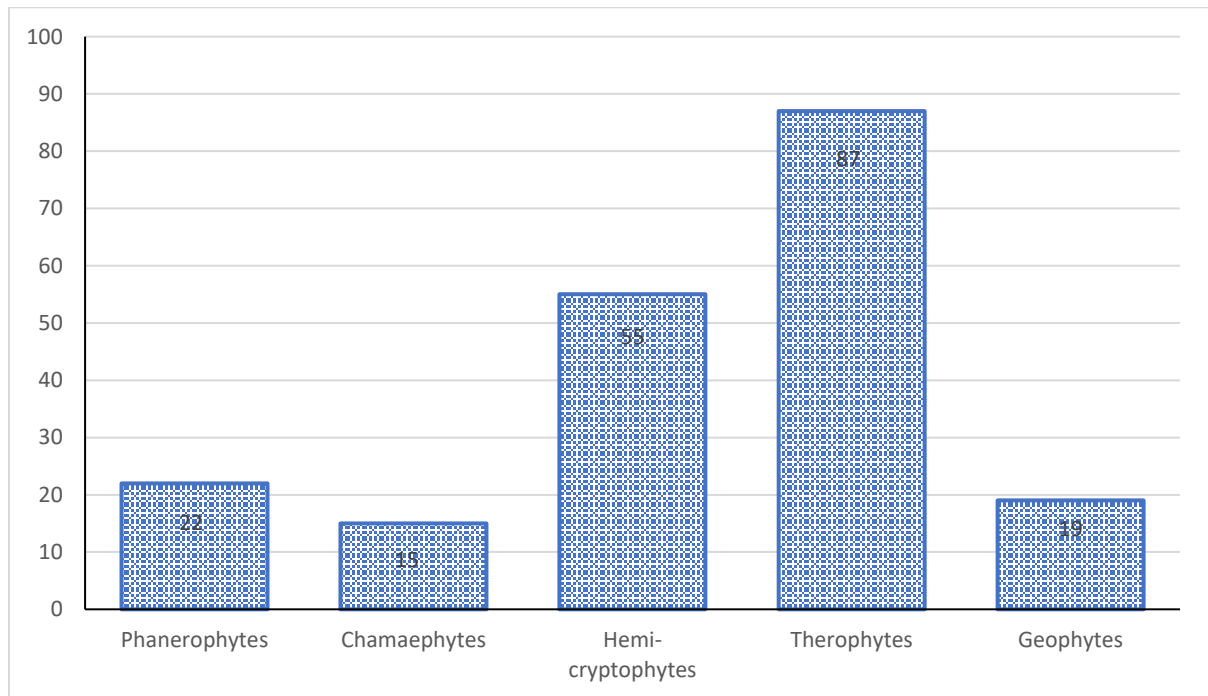


Fig.2: Distribution of Life Forms

As expected the amount of phanerophytes, therophytes and geophytes is high compared to walls in Central Europe whereas the amount of hemicryptophytes is lower. This can be seen clearly from Tab. 1. A distinct geographic respectively climatic trend is obvious.

Tab. 1: Distribution of life forms of plants growing on vertical walls

| Region | Life Forms % | | | | |
|-------------------------------|--------------------|-------------------|-----------------------|----------------|------------------|
| | Phanero- phytes | Chamae- phytes | Hemi- cryptophytes | Geo- phytes | Thero- phytes |
| Europe: Atlantic regions | 4 | 12 | 69 | 1 | 14 |
| Europe: Mediterranean regions | 6 | 17 | 41 | 1 | 35 |
| North Cyprus | 13 | 9 | 25 | 12 | 34 |
| Israel | 21 | 6 | 26 | 6 | 41 |
| Varanasi (India) | 10 | 2 | -- | 5 | 83 |

4. Preliminary checklist of the wall flora of North Cyprus

Acacia cyanophylla Lindl. – [Fabaceae]

Neophyte: running wild near places of cultivation. Salamis: vertical walls.

Acanthoprasium integrifolium (Benth.) Ryding (Syn. ***Ballota integrifolia*** Benth.) – [Lamiaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Acer obtusifolium Sm. – [Sapindaceae]

Indigenous. Karmi (Karaman): wall tops; St. Hilarion: base of walls.

Adiantum capillus-veneris L. – [Pteridaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls.

Ailanthus altissima (Mill.) Swingle – [Simaroubaceae]

Neophyte: naturalized invasive. Kyrénia (Girne): wall tops.

Ajuga chamaepitys (L.) Schreb. subsp. ***cypria*** P. H. Davis – [Lamiaceae]

Indigenous [near-endemic, also in Anatolia (Turkey)]. St. Hilarion: vertical walls, retaining walls, wall tops.

Allium neapolitanum Cirillo – [Amaryllidaceae]

Indigenous. Bellapais (Beylerbeyi): wall tops; Kyrénia (Girne): walls tops; Kantara (castle): retaining walls; Karmi (Karaman): vertical walls; St. Hilarion: retaining walls, vertical walls.

Alyssum strigosum Banks & Sol. – [Brassicaceae]

Indigenous. Besparmak (Pentadaktylos): wall tops; St. Hilarion: wall tops.

Anagallis arvensis L. – [Primulaceae]

Indigenous. Kyrénia (Girne): base of walls.

Anchusa humilis (Desf.) I. M. Johnst. – [Boraginaceae]

Indigenous. Salamis: wall tops.

Anchusa undulata L. – [Boraginaceae]

Indigenous [partly]. St. Hilarion: base of walls.

Anogramma leptophylla (L.) Link – [Pteridaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; Kyrénia (Girne): vertical walls; Karmi (Karaman): retaining walls.

Antirrhinum majus L. – [Plantaginaceae]

Partly indigenous. Bellapais (Beylerbeyi): vertical walls; Kyrénia (Girne): retaining walls; Karmi (Karaman): vertical walls, wall tops; St. Hilarion: vertical walls.

Aptenia cordifolia (L. f.) N. E. Br. – [Aizoaceae]

Casual neophyte. Kyrénia (Girne): top of vertical walls.

Note: possibly the hybrid 'Red Apple', see SMITH et al. (2020).

Arabis cypria Holmboe – [Brassicaceae]

Indigenous. North Cyprus endemic (VINEY 1994). Karmi (Karaman): retaining walls; St. Hilarion: vertical walls, wall tops.

Arabis verna (L.) R. Br. in W. T. Aiton – [Brassicaceae]

Indigenous. St. Hilarion: wall bases.

Arenaria leptoclados (Rchb.) Guss. – [Caryophyllaceae]

Indigenous. Bellapais (Beylerbeyi): wall tops.

Arenaria pamphylica subsp. ***kyrenica*** McNeill – [Caryophyllaceae]

Indigenous, near-endemic. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994). Bellapais (Beylerbeyi); St. Hilarion (VINEY 1994).

Arisarum vulgare Targ. Tozz. – [Araceae]

Indigenous. Kayalar: retaining walls.

Aristolochia sempervirens L. – [Aristolochiaceae]

Indigenous. Bellapais (Beylerbeyi): wall tops, retaining walls. Mentioned for walls by VINEY (1994).

Arum dioscoridis Sm. – [Araceae]

Indigenous. Bellapais (Beylerbeyi): wall bases; Kyrénia (Girne): wall bases; St. Hilarion: wall bases.

Arundo donax L. – [Poaceae]

Indigenous. Kyrénia (Girne): wall bases.

Asparagus horridus L. (Syn. ***Asparagus stipularis*** Forssk.) – [Asparagaceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Salamis: vertical walls, wall bases, wall tops:

Asphodelus fistulosus L. – [Xantorrhoeaceae]

Indigenous. Famagusta (Gazimagusa): wall tops.

Asphodelus ramosus – [Xantorrhoeaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Kyrénia (Girne): wall bases; Kayalar: retaining walls; St. Hilarion: wall bases.

Note: MEIKLE mentioned erroneously *Asphodelus astivus* (HAND R., G. N. HADJIKYRIAKOU & C. S. CHRISTODOULOU (2011 ff.): Flora of Cyprus – a dynamic checklist).

Asplenium ceterach L. – [Aspleniaceae]

Indigenous. Karmi (Karaman): vertical walls; St. Hilarion: vertical walls.

Note: mentioned for walls (VINEY 1996).

Avena* cf. *ventricosa – [Poaceae]

Indigenous. Salamis: wall bases.

Bellevalia trifoliata (Ten.) Kunth – [Asparagaceae]

Indigenous. Kyrénia (Girne): wall tops.

Biscutella didyma L. – [Brassicaceae]

Indigenous. Salamis: vertical walls.

Bituminaria bituminosa (L.) C. H. Stirt. (Syn. ***Asphaltium bituminosum*** (L.) Fourr. – [Fabaceae]

Partly indigenous. St. Hilarion: vertical walls.

Note: The situation on Cyprus is currently under revision (HAND R., G. N. HADJIKYRIAKOU & C. S. CHRISTODOULOU (2011 ff.): Flora of Cyprus – a dynamic checklist).

Bosea cypria - [Amaranthaceae]

Indigenous: endemic. Bellapais (Beylerbeyi): wall tops.

Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Brachypodium distachyon (L.) P. Beauv. (Syn. ***Trachynia distachya*** (L.) Link) – [Poaceae]

Indigenous. Kyrénia (Girne): retaining walls; Kantara castle: retaining walls; Karmi (Karaman): retaining walls; Kayalar: vertical walls; St. Hilarion: vertical walls, wall bases.

Brassica hilarionis Post – [Brassicaceae]

Indigenous: endemic. Kyrénia (Girne): wall tops; St. Hilarion: vertical walls.

Bromus* cf. *madritensis L. – [Poaceae]

Indigenous. Salamis: wall tops.

Bromus rubens L. – [Poaceae]

Indigenous. Kyrénia (Girne): wall bases.

Calendula arvensis L. – [Asteraceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Kyrénia (Girne): wall bases; St. Hilarion: wall bases.

Campanula erinus L. – [Campanulaceae]

Indigenous. Famagusta (Gazimagusa): vertical walls.

Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Capparis spinosa L. – [Capparidaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; Famagusta (Gazimagusa): vertical walls; Kyrénia (Girne): vertical walls, wall bases; St. Hilarion: vertical walls.

Note: mentioned for walls (VINEY 1994).

Capsella bursa-pastoris – (L.) Medik. [Brassicaceae]

Indigenous. Besparmak (Pentadaktylos):: wall bases.

Cardamine hirsuta – [Brassicaceae]

Indigenous [partly]. Karmi (Karaman): retaining walls, wall bases.

Carpobrotus edulis (L.) N. E. Br. – [Aizoaceae]

Kultivated and slowly naturalizing. Kyrénia (Girne): wall tops.

Note: obviously running wild.

Catapodium marinum (L.) C. C. Hubb. – [Poaceae]

Indigenous. Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1996).

Catapodium rigidum (L.) C. E. Hubb. – [Poaceae]

Indigenous. Kyrénia (Girne): retaining walls.

Note: mentioned for walls by MEIKLE (1977-1985) and (VINEY 1996).

Centaurea aegialophila Wagenitz – [Asteraceae]

Indigenous. St. Hilarion: wall bases.

Cheilanthes acrostica (Balb.) Tod. – [Pteridaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; St. Hilarion: vertical walls.

Chenopodium murale L. – [Chenopodiaceae]

Indigenous. Kyrénia (Girne): retaining walls, wall bases.

Clematis cirrhosa L. – [Ranunculaceae]

Indigenous. Karmi (Karaman): retaining walls; St. Hilarion: retaining walls, wall tops.

Convolvulus althaeoides L. – [Convolvulaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Kyrénia (Girne): wall bases; Salamis: wall bases.

Cosentina vellea (Aiton) Tod. (Syn. ***Cheilanthes vellea*** (Aiton) F. Muell.) – [Pteridaceae]

Indigenous. St. Hilarion: vertical walls.

Crassula alata (Viv.) Berger – [Crassulaceae]

Indigenous. Salamis: vertical walls, wall tops.

Note: mentioned for walls (VINEY 1994).

Crepis fraasii Sch. Bip. – [Asteraceae]

Indigenous. Karmi (Karaman): wall bases.

Cupressus sempervirens L. – [Cupressaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls (young plants).

Cyclamen persicum Mill. – [Primulaceae]

Indigenous. Kyrénia (Girne): vertical walls; Kantara castle: retaining walls; Karmi (Karaman): retaining walls.

Note: mentioned for walls (VINEY 1994).

Cynara cardunculus L. – [Asteraceae]

Indigenous. St. Hilarion: wall bases.

Dianthus cyprius A. K. Jacks. & Turrill – [Caryophyllaceae]

Indigenous: endemic. St. Hilarion: wall tops.

Dioscorea communis (L.) Ceddick & Wilkin (Syn. *Tamus communis* L.) – [Dioscoreaceae]

Indigenous. Bellapais (Beylerbeyi): wall bases.

Dittrichia viscosa subsp. ***angustifolia*** (Bég.) Greuter – [Asteraceae]

Indigenous. Salamis: wall bases.

Draba verna L. – [Brassicaceae]

Indigenous. St. Hilarion: wall tops.

Drimia aphylla (Forssk.) J. C. Manning & Goldblatt (Syn. ***Urginea maritima*** (L.) Bak. s.l.) –

[Asparagaceae]

Indigenous. Kayalar: retaining walls.

Dryopteris pallida subsp. ***libanotica*** (Rosenst.) E. Nardi – [Dryopteridaceae]

Indigenous. St. Hilarion: vertical walls of the cistern.

Ecballium elaterium (L.) A. Rich – [Cucurbitaceae]

Indigenous. Kyrénia (Girne): wall bases.

Echium angustifolium Mill. subsp. *angustifolium* – [Boraginaceae]

Indigenous. Kyrénia (Girne): wall bases, wall tops.

Emex spinosa (L.) Campd. – [Polygonaceae]

Indigenous. Salamis: wall bases.

Note: mentioned for walls (VINEY 1994).

Erigeron bonariensis L. (Syn. *Conyza bonariensis* (L.) Cronquist) – [Asteraceae]

Neophyte. Bellapais (Beylerbeyi): vertical walls, wall bases; Besparkmak: wall bases; Salamis: wall bases.

Erodium ciconium (L.) Hér. – [Geraniaceae]

Indigenous. Salamis: wall bases; St. Hilarion: retaining walls.

Erodium cicutarium (L.) Hér. subsp. *cicutarium* – [Geraniaceae]

Indigenous. St. Hilarion: retaining walls, wall tops.

Erodium malacoides (L.) Willd. – [Geraniaceae]

Indigenous. Kyrénia (Girne): wall tops.

Erodium moschatum (L.) Hér. – [Geraniaceae]

Indigenous. Barnabas: wall bases; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): wall bases, wall tops.

Euphorbia peplus L. – [Euphorbiaceae]

Indigenous. Besparkmak (Pentadaktylos): wall tops; Kyrénia (Girne): vertical walls; Kantara: wall bases; Karmi (Karaman): vertical walls; Salamis: wall tops; St. Hilarion: vertical walls.

Euphorbia terracina L. – [Euphorbiaceae]

Indigenous. Salamis: wall bases, wall tops.

Ferula communis L. subsp. *communis* – [Apiaceae]

Indigenous. Kyrénia (Girne): wall bases; Salamis: wall bases; St. Hilarion: vertical walls, wall bases.

Ficus carica L. – [Moraceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; Kyrénia (Girne): vertical walls.

Fumaria capreolata L. – [Papaveraceae]

Indigenous. Salamis: vertical walls. Note: mentioned for walls (VINEY 1994).

Fumaria gaillardotii Boiss. – [Papaveraceae]

Indigenous. Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Fumaria judaica Boiss. subsp. *judaica* – [Papaveraceae]

Indigenous. Kyrénia (Girne): retaining walls; Karmi (Karaman): vertical walls. Note: mentioned for walls (VINEY 1994).

Gagea peduncularis (J. Presl & C. Presl) Pascher – [Liliaceae]

Indigenous. St. Hilarion: vertical walls.

Note: Perhaps also the endemic *Gagea julia* Pascher, which was found in mixed populations with *Gagea peduncularis* in St. Hilarion (MEIKLE 1985).

Galium aparine L. – [Rubiaceae]

Indigenous. Kyrénia (Girne): wall bases; Karmi (Karaman): wall bases; Salamis: wall bases; St. Hilarion: wall tops.

Galium canum Req. – [Rubiaceae]

Indigenous. Kyrénia (Girne): wall bases; Karmi (Karaman): wall bases; Salamis: wall bases; St. Hilarion: wall tops.

Galium murale (L.) All. – [Rubiaceae]

Indigenous. St. Hilarion: vertical walls.

Galium setaceum Lam. – [Rubiaceae]

Indigenous. Note: mentioned for walls by VINEY (1994).

Geranium lucidum L. - [Geraniaceae]

Indigenous. St. Hilarion: shaded wall tops.

Geranium molle L. – [Geraniaceae]

Indigenous. Kantara castle: retaining walls; St. Hilarion: wall tops.

Geranium rotundifolium L. – [Geraniaceae]

Indigenous. Salamis: vertical walls, wall tops.

Glebionis coronaria (L.) Spach – [Asteraceae]

Indigenous. Kyrénia (Girne): wall tops; Salamis: wall tops.

Hedera spec. – [Araliaceae]

Indigenous (?). Bellapais (Beylerbeyi): vertical walls.

Helianthemum stipulatum (Forssk.) C. Chr. – [Cistaceae]

Indigenous. Salamis: wall bases, wall tops.

Helichrysum stoechas L. Moench subsp. ***barrelieri*** (Ten.) Nyman (Syn. *Helichrysum conglobatum* (Viv.) Steud.) – [Asteraceae]

Indigenous. Kayalar: retaining walls.

Hippocrepis multisiliquosa L. – [Fabaceae]

Indigenous. Salamis: wall bases.

Hordeum leporinum Link – [Poaceae]

Indigenous. Barnabas: wall bases; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): wall bases, wall tops; Kantara castle: wall bases.

Hyoscyamus albus L. – [Solanaceae]

Indigenous. Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Hyoscyamus aureus L. – [Solanaceae]

Indigenous. Barnabas: wall bases, wall tops; Famagusta (Gazimagusa): vertical walls; Kyrénia (Girne): retaining walls, vertical walls, wall bases, St. Hilarion: vertical walls. Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Hyparrhenia hirta (L.) Stapf – [Poaceae]

Indigenous. St. Hilarion: wall tops.

Hypericum lanuginosum Lam. – [Hypericaceae]

Indigenous. Note: Mentioned for walls by VINEY (1994).

Iris germanica L. – [Iridaceae]

Neophyte. St. Hilarion: wall tops.

Klasea cerinthifolia (Sm.) Greuter & Wagenitz – [Asteraceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops.

Lamarckia aurea (L.) Moench – [Poaceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): wall tops.

Lamium amplexicaule L. – [Lamiaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; St. Hilarion: vertical walls, wall bases.

Lamium garganicum L. subsp. ***garganicum*** – [Lamiaceae]

Indigenous. Note: Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Lamium moschatum Mill. subsp. ***micranthum*** (Boiss.) Mennema – [Lamiaceae]

Indigenous. Kyrénia (Girne): retaining walls. Note: mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Lantana camara L. – [Verbenaceae]

Kultivated and running wild (casual). Bellapais (Beylerbeyi): wall tops.

Lathyrus annuus L. – [Fabaceae]

Indigenous. Bellapais (Beylerbeyi): wall bases, wall tops; Salamis: wall bases.

Lecokia cretica (Lam.) DC. – [Apiaceae]

Indigenous. Karmi (Karaman): wall bases.

Leontodon tuberosus L. – [Asteraceae]

Indigenous. Besparmak (Pentadaktylos): wall tops.

Lotus longisiliquosus R. Roem. (Syn. *Lotus collinus* (Boiss.) Heldr.) – [Fabaceae]

Indigenous. Salamis: wall bases, wall tops.

Lotus peregrinus L. – [Fabaceae]

Indigenous. Salamis: wall bases.

Lycium ferocissimum Miers – [Solanaceae]

Neophyte. Barnabas: wall tops; Salamis: vertical walls, wall tops.

Malcolmia chia (L.) DC. – [Brassicaceae]

Indigenous. St. Hilarion: vertical walls.

Malcolmia flexuosa (Sm.) Sm. – [Brassicaceae]

Indigenous. St. Hilarion: vertical walls.

Malva multiflora (Cav.) Soldano & al. (Syn. *Lavatera cretica* L.) – [Malvaceae]

Indigenous. Kyrénia (Girne): wall bases; Salamis: wall bases.

Mandragora officinarum L. – [Solanaceae]

Indigenous. Kyrénia (Girne): wall tops; St. Hilarion: wall bases.

Matthiola incana (L.) L. Br. – [Brassicaceae]

Neophyte (Checklist: casual). Kyrénia (Girne): retaining walls, vertical walls.

Medicago littoralis Loisel. var. *littoralis* – [Fabaceae]

Indigenous. Salamis: wall bases.

Medicago truncatula Gaertn. – [Fabaceae]

Indigenous. Kyrénia (Girne): wall tops.

Melica minuta L. – [Poaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1996).

Mercurialis annua L. – [Euphorbiaceae]

Indigenous. Barnabas: wall tops; Bellapais (Beylerbeyi): wall tops; Besparmak (Pentadaktylos):: wall tops; Kyrénia (Girne): wall tops; Kantara castle: retaining walls; Salamis: wall tops, wall bases; St. Hilarion: vertical walls, wall bases.

Mesembryanthemum crystallinum L. – [Aizoaceae]

Indigenous (?). Kyrénia (Girne): wall bases.

Micromeria myrtifolia Boiss. & Hohen. – [Lamiaceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Kantara castle: wall tops.

Micromeria nervosa (Desf.) Benth. – [Lamiaceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Kantara castle: wall tops; St. Hilarion: vertical walls, wall bases.

Minuartia hybrida (Vill.) Schischk. – [Caryophyllaceae]

Indigenous. Kyrénia (Girne): wall tops.

Misopates orontium (L.) Raf. – [Plantaginaceae]

Indigenous. Kyrénia (Girne): wall bases; Salamis: wall bases, wall tops.

Moraea sisyrinchium (L.) Ker Gawl. – [Iridaceae]

Indigenous. Kyrénia (Girne): wall bases, wall tops.

Muscari inconstictum Rech. F. – [Asparagaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Kayamar: retaining walls.

Nerium oleander L. – [Apocynaceae]

Indigenous. Kyrénia (Girne): walls of the castle.

Nicotiana glauca Graham – [Solanaceae]

Neophyte. Famagusta (Gazimagusa): wall tops; Salamis: vertical walls, wall tops.

Onosma caespitosa Kotschy – [Boraginaceae]

Indigenous. St. Hilarion: vertical walls.

Origanum syriacum L. – [Lamiaceae]

Indigenous. Mentioned for walls by VINEY (1994).

Ornithogalum pedicellare Boiss. & Kotschy – [Asparagaceae]

Indigenous. Kyrénia (Girne): wall tops, wall bases.

Osteospermum ecklonis (DC.) Norl. – [Asteraceae]

Cultivated and sometimes running wild. Kyrénia (Girne): retaining walls, wall tops, wall bases; Karmi (Karaman): wall bases.

Oxalis pes-caprae L. – [Oxalidaceae]

Neophyte (invasive). Bellapais (Beylerbeyi): retaining walls; Besparmak (Pentadaktylos): wall tops; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): vertical walls, wall tops; Karmi (Karaman): vertical walls;
St. Hilarion: wall bases.

Pallenis spinosa L. (Cass.) – [Asteraceae]

Indigenous. Kyrénia (Girne): wall bases; Kayalar: retaining walls.

Papaver gracile Boiss. – [Papaveraceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Papaver hybridum L. – [Papaveraceae]

Indigenous. Kantara castle: retaining walls.

Parietaria cretica L. – [Urticaceae]

Indigenous. Kyrénia (Girne): vertical walls.

Parietaria judaica L. – [Urticaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): retaining walls, vertical walls, wall bases; Karmi (Karaman): wall bases; Salamis: vertical walls, wall bases.

Parietaria lusitanica L. – [Urticaceae]

Indigenous. Barnabas: vertical walls, wall bases; Bellapais (Beylerbeyi): vertical walls; Famagusta (Gazimagusa): vertical walls, wall tops; Kyrénia (Girne): vertical walls; Karmi (Karaman): vertical walls, wall bases; Salamis: vertical walls; St. Hilarion: vertical walls.

Paronychia argentea Lam. – [Caryophyllaceae]

Indigenous. Barnabas: wall tops; Salamis: wall tops.

Phagnalon rupestre (L.) DC. subsp. ***rupestre*** – [Asteraceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls, wall tops; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): retaining walls, wall tops; Salamis: vertical walls, wall tops; St. Hilarion: vertical walls, wall bases.

Piptatherum miliaceum (L.) Coss. – [Poaceae]

Indigenous. Bellapais (Beylerbeyi): retaining walls, wall tops; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): retaining walls, wall bases, wall tops; Karmi (Karaman): walls; Kayalar: retaining walls; Salamis: wall bases.

***Pistacia lentiscus* L.** – [Anacardiaceae]

Indigenous. Kyrénia (Girne): wall tops; St. Hilarion: wall tops.

***Pistacia terebinthus* L.** – [Anacardiaceae]

Indigenous. St. Hilarion: wall tops.

***Plantago afra* L.** – [Plantaginaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Famagusta (Gazimagusa): wall tops.

***Plantago lagopus* L.** – [Plantaginaceae]

Indigenous. Kyrénia (Girne): wall bases; St. Hilarion: wall tops.

***Poa annua* L.** – [Poaceae]

Indigenous. Kyrénia (Girne): wall bases.

***Poa compressa* L.** – [Poaceae]

Indigenous (?). St. Hilarion: vertical walls.

***Polycarpon tetraphyllum* (L.) L.** – [Caryophyllaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

***Polygonum aviculare* s.l.** – [Polygonaceae]

Indigenous. Salamis: vertical walls, wall tops.

***Poterium verrucosum* G. Don** – [Rosaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls, wall tops; Kayalar: retaining walls; St. Hilarion: wall bases.

***Prasium majus* L.** – [Lamiaceae]

Indigenous. Kantara castle: retaining walls; Kayalar: retaining walls; St. Hilarion: vertical walls.

***Ptilostemon chamaepeuce* (L.) Less. subsp. *cyprius* (Greuter) Chrtek & B. Slavik** – [Asteraceae]

Indigenous (endemic). Karmi (Karaman): retaining walls, wall bases.

***Ranunculus millefoliatus* subsp. *leptaleus* (DC.) Meikle** – [Ranunculaceae]

Indigenous (endemic). Besparmak (Pentadaktylos):: retaining walls.

***Reichardia picroides* (L.) Roth** – [Asteraceae]

Indigenous. Kyrénia (Girne): vertical walls.

***Reseda* aff. *minoica* Martín-Bravo & Jim. Mejías** – [Resedaceae]

Indigenous. St. Hilarion: vertical walls. Note: *Reseda orientalis* was mentioned for the Salamis ruins by VINEY (1994).

***Rhamnus lycioides* L. subsp. *graeca* (Boiss. & Reut.) Tutin** – [Rhamnaceae]

Indigenous. St. Hilarion: vertical walls.

***Rostraria cristata* (L.) Tzvelev** – [Poaceae]

Indigenous. Salamis: wall tops.

***Rosularia globulariifolia* (Fenzl) A. Berger** – [Crassulaceae]

Indigenous. Note: Mentioned as *Rosularia cypria* for walls by VINEY (1994).

Rosularia pallidiflora (Holmboe) Meikle – [Crassulaceae]

Indigenous (endemic). Note: Mentioned for walls by VINEY (1994).

Observation: *Rosularia* spec. was found at Kantara castle (retaining walls) and at St. Hilarion (vertical walls).

Rubia lauræ (Holmboe) Airy Shaw – [Rubiaceae]

Indigenous (endemic). Karmi (Karaman): wall bases of retaining walls.

Rubia tenuifolia d'Urv. – [Rubiaceae]

Indigenous. Kantara castle: retaining walls; Kayalar: retaining walls.

Salvia verbenaca L. – [Lamiaceae]

Indigenous. St. Hilarion: wall bases.

Saxifraga hederacea L. – [Saxifragaceae]

Indigenous. Karmi (Karaman): retaining walls.

Saxifraga tridactylites L. – [Saxifragaceae]

Indigenous. Kantara castle: wall tops.

Scaligeria napiformis (Spreng.) Grande (Syn. *S. cretica* (Mill.) Boiss.) – [Apiaceae]

Indigenous. Kantara castle: retaining walls.

Scandix pecten-veneris L. – [Apiaceae]

Indigenous. Karmi (Karaman): wall tops; Kayalar: retaining walls; St. Hilarion: wall tops.

Scilla cilicica Meikle (Syn. *S. morrisii* Meikle ?) – [Asparagaceae]

Indigenous (endemic). Kantara castle: retaining walls; St. Hilarion: vertical walls.

Scrophularia peregrina L. – [Scrophulariaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994). St. Hilarion: vertical walls.

Sedum lampusae (Kotschy) Boiss. – [Crassulaceae]

Indigenous (endemic to the northern range). Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994). Karmi (Karaman): vertical walls; St. Hilarion: vertical walls.

Sedum litoreum Guss. – [Crassulaceae]

Indigenous. Kyrénia (Girne): vertical walls.

Selaginella denticulata (L.) Link – [Selaginellaceae]

Indigenous. Karmi (Karaman): retaining walls; St. Hilarion: vertical walls.

Senecio angulatus L. f. – [Asteraceae]

Cultivated and sometimes running wild (neophyte). Karmi (Karaman): climbing over trees and walls.

Senecio cineria DC. (Syn. *Jacobaea maritima* L.) Pelser & Meijden subsp. *maritima* – [Asteraceae]

Cultivated and sometimes running wild (neophyte). – Karmi (Karaman): climbing on wall tops.

Senecio vulgaris L. – [Asteraceae]

Indigenous. Besparmak (Pentadaktylos): wall tops; Famagusta (Gazimagusa): wall tops; Kyrénia (Girne): wall bases; Karmi (Karaman): wall bases; Salamis: vertical walls; St. Hilarion: vertical walls, wall bases.

Silene fruticosa L. – [Caryophyllaceae]

Indigenous. Kantara castle: retaining walls.

Silene vulgaris (Moench) Garcke – [Caryophyllaceae]

Indigenous. Besparmak (Pentadaktylos):: wall bases; Karmi (Karaman): wall tops; St. Hilarion: wall tops. Observation: at least on further *Silene* species (indet.) was found at vertical walls in Karmi (Karaman).

Sinapis alba L. – [Brassicaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops.

Sisymbrium irio L. – [Brassicaceae]

Indigenous. Salamis: wall bases.

Smyrnium olusatrum L. – [Apiaceae]

Indigenous. Karmi (Karaman): wall bases; Salamis: wall bases; St. Hilarion: retaining walls.

Sonchus oleraceus L. – [Apiaceae]

Indigenous. Barnabas: wall bases; Besparmak (Pentadaktylos):: wall tops; Famagusta (Gazimagusa): vertical walls, wall tops; Kyrénia (Girne): wall bases; Karmi (Karaman): wall bases.

Sonchus tenerrimus L. - [Apiaceae]

Indigenous. Salamis: wall tops.

Spergularia diandra (Guss.) Sart. & Heldr. – [Caryophyllaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994).

Stellaria cupaniana Jord. & Fourr. - [Caryophyllaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Kantara castle: retaining walls.

Stipa capensis Thunb. – [Poaceae]

Indigenous. Famagusta (Gazimagusa): wall tops.

Theligonum cynocrambe L. – [Rubiaceae]

Indigenous. Bellapais (Beylerbeyi): vertical walls; Kantara castle: retaining walls; Karmi (Karaman): retaining walls; Kayalar: retaining walls; St. Hilarion: vertical walls, wall bases.

Tordylium trachycarpum (Boiss.) Jury & Al-Eisawi (Syn.: *Ainsworthia trachycarpa* Boiss) – [Apiaceae]

Indigenous. Barnabas: wall tops.

Tragopogon porrifolius subsp. ***longirostris*** (Sch. Bip.) Greuter (Syn. *Tragopogon sinuatus* Avé-Lall.) – [Asteraceae]

Indigenous. Salamis: wall bases.

Typha domingensis Pers. – [Typhaceae]

Indigenous. Kyrénia (Girne): wall bases (!).

Umbilicus rupestris (Salisb.) Dandy – [Crassulaceae]

Indigenous. Kyrénia (Girne): vertical walls; Karmi (Karaman): vertical walls; St. Hilarion: retaining walls, vertical walls.

Urospermum picroides (L.) F. W. Schmidt – [Asteraceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Salamis: wall tops.

Urtica membranacea Poir. – [Urticaceae]

Indigenous. Famagusta (Gazimagusa): wall bases; Salamis: wall bases.

Urtica pilulifera L. – [Urticaceae]

Indigenous. Famagusta (Gazimagusa): wall tops.

Valantia hispida L. – [Rubiaceae]

Indigenous. Salamis: vertical walls, wall tops.

Valantia muralis L. – [Rubiaceae]

Indigenous. Famagusta (Gazimagusa): wall tops; Kayalar: vertical walls.

Valeriana italica Lam. – [Valerianaceae]

Indigenous. Kantara castle: retaining walls.

Verbascum levanticum I. K. Ferguson – [Scrophulariaceae]

Indigenous. Note: Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994). Bellapais (Beylerbeyi): vertical walls; Kyrénia (Girne): vertical walls; Karmi (Karaman): vertical walls, wall bases; St. Hilarion: vertical walls.

Verbascum sinuatum L. – [Scrophulariaceae]

Indigenous. Salamis: wall bases.

Veronica cymbalaria Bodard – [Plantaginaceae]

Indigenous. Mentioned for walls by MEIKLE (1977-1985) and VINEY (1994). Bellapais (Beylerbeyi): vertical walls; Besparmak (Pentadaktylos):: wall tops; Kyrénia (Girne): vertical walls; Kantara castle: retaining walls, wall tops; Karmi (Karaman): vertical walls; St. Hilarion: wall tops.

Vicia cypria Kotschy – [Fabaceae]

Indigenous. St. Hilarion: wall tops.

Vicia hybrida L. – [Fabaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; Salamis: walls tops, wall bases; St. Hilarion: wall tops.

Vinca major L. – [Apocynaceae]

Neophyte. Karmi (Karaman): wall tops.

Zosima absinthiiifolia (Vent.) Link – [Apiaceae]

Indigenous. Besparmak (Pentadaktylos):: wall tops; St. Hilarion: wall bases.

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Adiantum capillus-veneris.
Bellapais (Beylerbeyi). 2017-03-11.



Antirrhinum majus.
Bellapais (Beylerbeyi). 2017-03-11.



Arabis cypria: St. Hilarion. 2019-03-12.



Arisarum vulgare.
Karmi (Karaman). 2017-03-10.



Borea cypria: Bellapais (Beylerbeyi). 2019-03-11.



Cheilanthes acrostica: St. Hilarion. 2017-03-13.



Clematis cirrhosa: Karmi(Karaman). 2017-03-10.



Cyclamen persicum:
Karmi (Karaman). 2017-03-10.



Dioscorea communis:
Bellapais (Beylerbeyi). 2017-03-11.



Dryopteris pallida subsp. *libanotica*:
St. Hilarion. 2019-03-12.



Ferula communis: Salamis. 2017 -03-12.



Gagea cf. *peduncularis*:
St. Hilarion. 2017-03-1.



Galium canum: St. Hilarion. 2017-03-13.



Helianthemum stipulatum: Salamis. 2017-03-12.



Hyoscyamus aureus:
Famagusta (Gazimagusa). 2017-03-12.



Lamium amplexicaule: St. Hilarion. 2017-03-13.



Lamium moschatum: Kyrénia (Girne). 2019-03-13.



Matthiola incana: Kyrénia (Girne). 2018-03-13.



Moraea sisyrinchium: Kyrénia (Girne). 2019-03-13.



Ornithogalum pedicellare:
Kyrénia (Girne). 2019-03-13.



Phagnalon rupestre subsp. *rupestre*:
Salamis. 2017-03-12.



Ptilostemon chamaepeuce: Retaining walls
above Karmi (Karaman). 2017-03-10.



Ranunculus millefoliatus: Retaining wall
in the Pentadactylos area. 2017-03-11.



Senecio angulatus:
Karmi (Karaman). 2017-0310.



Smyrnium olusatrum: St. Hilarion. 2017-03-13.



Scilla cilicica: St. Hilarion. 2019-03-13.



Thelygonum cynocrambe..
Bellapais (Beylerbeyi). 2017-03-11.



Valeriana italica: Kantara castle. 2019-03-15.



Veronica cymbalaria: St. Hilarion. 2019-03-12



Vinca major: Karmi (Karaman). 2017-03-10.



Verbascum levanticum: Kyrénia (Girne). 2019-03-13.



Kyrénia (Girne), vegetation (mainly *Hyoscyamus aureus*) in fissures of the fort. 2019-03-13.